

called A-not-B error was proved to be triggered largely by the ostensive communicative cues from the experimenter. Recent comparative analysis of this perseverative error in canines has indicated infant-like sensitivity to human communicative signals in dogs, and suggests that this is an evolutionary novel skill of dogs that is lacking in wolves. These results, however, can be explained by two alternative hypotheses. First, in the communicative hiding context the experimenter may distract the dogs' attention by a "sham baiting" to location A in the B trials. Second the search error may simply be a habitual response, due to dogs' inability to inhibit previously rewarded motor response of going to the A location.

In order to clarify these concerns, in the present study besides the "classical" social and ostensive condition we also tested dogs in two control conditions. In the first control condition after the A trials the reward was hidden directly to location B without any misleading movements and signs given by the experimenter. In the second control condition before the B trials dogs could only observe the A hidings without any search response in order to avoid motoric habituation.

In all three conditions we found a strong bias to location A in the B trials. Therefore our results not only replicate the earlier ones but also provide a support that the error mirrors infantanalogue responsiveness to human communicative cues, providing a typical case for how this social sensitivity could (mis)lead domestic dogs.

**Key words:** dog; A-not-B error; social cognition; communication

## PERSISTENCE OF PUPPY BEHAVIORS AND SIGNS OF ANXIETY DURING ADULTHOOD

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An earlier pilot study showed that some puppies expressed specific behaviors and signs of stress or anxiety at very young age when exposed to a veterinary clinic environment (Godbout et al., 2007). The aim of the present study was to evaluate the persistence of these behaviors into adulthood. A total of 42 puppies of various breeds were filmed during an examination in a veterinary clinic at 2 to 4 months of age and 12 months later. The study included observation of the puppy free on the floor (FF) and various manipulations by the veterinarian (MF).

During FF the behavioral categories recorded were: activity, exploration, facial expression, puppy solicitation of interaction with the veterinarian, vocalisation and others. During MF, the type of interaction with the veterinarian, facial expression and ear position were examined.

The Spearman rank correlation coefficient test revealed positive and significant correlations between behaviors exhibited by puppies and adult dogs.

During FF, correlation was significant for time spent in movement, exploring the environment, sitting down immobile, panting, self-grooming and defecating.

During MF the behaviors with significant correlations were: holding their ears backwards, panting, showing passive behaviors, avoiding contact with the veterinarian, licking their lips and yawning.

The present study showed that most puppy behaviors tend to persist in adulthood. Correlation for the following signs of anxiety - panting ( $0.53 P < 0.001$ ), yawning ( $0.42 P < 0.01$ ), lip licking ( $0.49 P < 0.002$ ), defecating ( $0.53 P < 0.001$ ) and holding their ears backward ( $0.52 P < 0.001$ ) - were the highest between the 2 data collection sessions. Persistence of these signs into adulthood suggests that anxious dogs may be identified at very young age. Whether these puppies are anxious in other contexts or could be more at risk for developing behavioral problems remains to be investigated.

**Key words:** puppy; behavior; anxiety, veterinary clinic, dog

## Reference

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## DOG REGULATION IN EAST-FLANDERS, BELGIUM

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Governmental regulations intended to control dogs address such issues as social regulations (e.g., access to public places), interactions between dogs and humans or animals (e.g., leash laws and identification), animal welfare (e.g., transportation and housing), and sanctions against certain actions and situations.

To survey and compare the regulations within a large, discrete area, we contacted all 65 cities/villages and all 29 police districts in East Flanders, a Belgian Province

covering 2,991 km<sup>2</sup> and home to about 1.4 million people in 2010. Contact was first made by email; phone calls were made to those who had not responded after 2 months. Forty-eight (74%) of the cities and villages and 22 of the police districts (76%) submitted copies of their regulations. Dogs' access to at least one public space—such as sport centres, public buildings, play grounds, beaches, and public parks—is forbidden in 14% of the cities/villages and 26% of the police districts. Some of these cities/villages also forbid certain breeds of dogs; pit bulls or pit bull mixes are always included in regulations that forbid certain breeds. Twenty four percent of the cities/villages and 37% of the police districts specify public areas (viz., public spaces, some parks, cemeteries, and forests) where dogs have access only when on a leash.

Thirteen (27%) of the cities/villages and 14 (64%) of the police districts sanction loud barking. In 31% of the cities/villages and in 50% of the police districts, owners are required to control their dogs in public places. In only 3 (14%) of the police regulations owners are forbidden from involving dogs in dogfights. Only 21% of all cities/villages and 23% of all police districts back infractions with either prison terms or fines (€1–25).

In general, the regulations vary between adjacent municipal region and even with the overlaying police district(s), making it difficult to know which regulations to follow. Little coordination was found in enforcing or understanding conflicting regulations. Given the difficulty associated with knowing and enforcing these conflicting dog safety ordinances, we recommend a concerted effort to draft national regulations informed by objective, scientifically-based knowledge.

**Key words:** biting; dog; East Flanders; regulation

### EXCESSIVE MOUTHING IN PUPPIES AS A PREDICTOR OF AGGRESSIVENESS IN ADULT DOGS

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Owners of puppies presenting excessive mouthing frequently wonder if this behavior could be a predictor of future aggressive behavior. The aim of this double-blinded control study was to evaluate the association between excessive mouthing in puppies (a puppy's continuous desire to bite at humans' hand or arm during handling or manipulation) and the development of aggressiveness in adult dogs.

One hundred sixty puppy owners completed a questionnaire on the frequency of their puppy's mouthing behavior in specific contexts. One hundred two of these puppies aged between 8 and 16 weeks were also examined in a veterinary clinic to confirm the presence or the absence of mouthing

behaviour during handling or manipulation. Sixty-one puppies aged between 8 and 16 weeks were selected and separated based on presence or absence of mouthing behavior into a target group (38 "mouthing" puppies) and a control group (23 "non-mouthing" puppies).

A validated questionnaire (C-BARQ) was used to follow the potential development of aggressive behavior at 1 and 3 years of age. The origin, size, breed, and sex of the puppy did not affect the presence of mouthing behavior. The retention of puppies in the household at 1 and 3 years of age was not affected by the presence of mouthing behavior in puppyhood. No significant difference was observed between the two groups regarding the development of aggressive behavior at 1 and 3 years of age. This study suggests that excessive mouthing in puppies is not associated with the development of aggressive behavior in adult dogs. Whether this behavior is a predictor of other behavior problems remains to be evaluated.

**Key words:** aggression; puppy; behavior; mouthing; dog

### DOG WELFARE FOR THE CONVEYANCE OF PRO-SOCIAL SKILLS TO PRISON POPULATIONS

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Dogs participate in our society in a large number of assisted activities designed to help human groups with specific needs. One of these groups is the prison population, which commonly suffers from a lack of pro-social skills. Generally, the activities with dogs focused on pro-social skills recovering consist of dog-training technique courses, the preparation of assistance dogs or taking care of dogs as pets. In these activities the transmission of pro-social skills is not direct and dogs' welfare is subject to the development of the activity. Furthermore, dogs live permanently inside the prison.

Since 2007, AEPA-Euskadi has been developing a program of dog assisted activities with prison inmates consisting in the direct transmission of pro-social rules. This program extends across the reintegration process, from prison to halfway flats, and the welfare of dogs is guaranteed along all the activities. The main activity of the program takes place inside the prison and consists in a course on Positive Canine Education, the contents of which are precisely the human-to-dog and human-to-human pro-social skills. Attendants are twenty to forty years old men convicted mostly for drug-related offences, but also for robbery, rape and murder. The program continues outside the prison in escorted outings and halfway flats. Importantly, all the activities are carried out by the same specialists of AEPA-Euskadi and the same dogs, which moreover are their own family-dogs.

Our approach has shown to be especially beneficial for the inmates for three main reasons. First, the transmission of pro-social skills is direct as it is based on the similarity of